Space Weather Forecast

Issued on Wednesday, 01 February 2023 at 01:26 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: No significant geomagnetic activity expected. Slight chance of Moderate solar activity throughout.

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Solar activity is Low with only five relatively inactive and slowly evolving sunspots on the visible disc. Three of these regions are on the west of the disc, with two regions in the southeast quadrant. There is evidence of a weak CME (coronal mass ejection) leaving the southern hemisphere of the Sun early on 31 January, but there is not currently enough imagery to carry out a sufficient analysis of the feature. No further Earth-directed CMEs have been identified on satellite imagery.

Solar Wind / Geomagnetic Activity: The solar wind has been generally steady at slightly elevated levels, with brief spikes to elevated levels, due to a fast solar wind. Total magnetic field strength was disturbed through much of the 24 hour period, varying between weak and moderate levels, but fell to consistently weak levels by the end of the period. The north-south component varied between negative and positive levels, but with a slight bias for a negative orientation. Geomagnetic activity was generally Quiet, with one Unsettled interval.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary
Solar Activity: Solar activity is expected to be mainly Low, with no significant sunspots on the visible disc and none due to rotate around from the farside of the Sun. There is a very slight chance of M-class flaring based on the configurations of the visible regions.

Solar Wind / Geomagnetic Activity: A glancing CME may affect the Earth during 03 February, but with low confidence. A fast solar wind, which is producing slightly elevated or elevated solar winds is likely to decline to background by 03 February, with a further fast wind perhaps connecting during 02 February. Geomagnetic activity is expected to be mainly Quiet to Unsettled, with a slight chance of G1/Minor Storms on 02 and 03 February due to a new fast solar wind and potential CME respectively.

Energetic Particles / Solar Radiation: No solar radiation storms are likely given the dearth of significant sunspots.

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Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	10	10	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	10	10	10	10
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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